REMARKS/ARGUMENTS

Specification

The Examiner has objected to the disclosure, stating it contains embedded hyperlinks. Applicants have amended the specification to address this concern of the Examiner. Therefore, the objection should be withdrawn.

Drawings

The Examiner has objected to Figure 2 because the reference number "226" has been used to designate both the MEMORY UNIT and the CLI/SNMP INTERFACE. Applicants are submitting herewith a replacement sheet for Figure 2. In the replacement sheet, Figure 2 has been corrected to reference the CLI/SNMP INTERFACE with reference number "228." Additionally, the specification has been amended to correct a single instance where the CLI/SNMP INTERFACE was referenced with reference number "226." Thus, Figure 2 is now consistent with the specification, and the objection should be withdrawn.

Claim Rejections – 35 U.S.C. § 102

The Examiner has rejected claims 1-3, 11, 16, 17-20 and 27 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent 6,834,050 to Madour et al. (hereafter "Madour"). This rejection is respectfully traversed.

Claim 1 recites:

> A method for providing Internet Protocol communication services in a communication network, the method comprising:
> detecting a communication session associated with a client device on a first network device;

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sending a first message from the first network device to a second network device, the first message comprising a registration request;

determining on the second network device a network address of a third network device for providing communication services for the communication session associated with the client device;

sending a first response message from the second network device to the first network device, the first response message comprising a registration reply message including the network address of the third network device; and

establishing a communication session between the client device and the third network device specified in the first response reply message, the third network device arranged to provide communication services to the client network device.

The method of claim 1 is directed to a method of providing Internet Protocol communication services in a communication network. The method of claim 1 includes detecting a communication session associated with a client device (such as a mobile node) on a first network device (such as a packet control function (PCF) in a radio node). Responsive to detecting the communication session, the first network device (e.g., the PCF of the radio node) sends a first message including a registration request to a second network device (e.g., a control network entity). When the second network device (e.g., the control network entity) receives the registration request, the second network device determines a network address of a third network device (e.g., a packet data serving node (PDSN)) to provide network services to the client device. Responsive to determining the network address of the third network device (e.g., the PDSN), the second network device (e.g., the control network entity) sends to the first network device (e.g., the PCF of the radio node) a first response message including the network address of the third network device. A communication session (e.g., a Point-to-Point Protocol (PPP) session) is then established between the client device (e.g., the mobile node) and the third network device (e.g., the PDSN).

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The Examiner asserts that Madour anticipates claim 1. Specifically, the Examiner asserts that a radio network (in Figure 1 of Madour) corresponds to the first network entity of claim 1, that a PCF (in Figure 1 or 2 of Madour) corresponds with the second network entity of claim 1 and that a PDSN (in Figure 2 of Madour) corresponds to the third network entity of claim 1. Those of skill working in the area of mobile communications systems would appreciate that a radio network and a PCF (the first and second network entities in the Examiner's analysis) are both implemented as parts of a single functional entity, e.g., a radio access node. The radio network portion of this entity merely provides a medium for the communication of voice and/or data information, while the PCF is responsible for routing packet data traffic communicated to/from the radio access node. Therefore, the Examiner's separation of the radio network and the PCF into two separate entities is technically inaccurate.

In fact, the disclosure of Madour is consistent with such an implementation of a RAN, where the radio node is inclusive of a PCF. For example, as is illustrated in Figure 1 of Madour, the radio network 14 and PCF 22 are implemented as a single entity. Figure 1 of Madour is presented below for the Examiner's convenience.

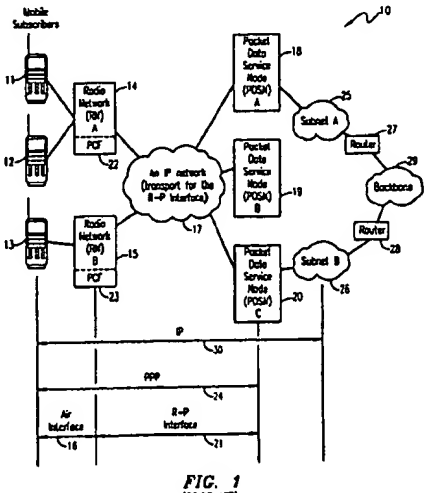

FIG. 1
(PRIOR ART)

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Further, with regard to various implementations of radio nodes, the present application, on page 11, lines 12-14, describes a radio node as including a radio network node ("RNN"), a base station control ("BSC") node or a Packet Control Node ("PCN"). On page 19, lines 7-9, the application further states that different types of radio nodes could also be used, such as a Packet Control Function ("PCF") node. From the foregoing, it is clear that a PCN (or a PCF) in a mobile communication system is implemented as part of a radio node in conjunction with the radio network, not as a functionally separate entity from the radio node (and the radio network).

However, even were the radio network and the PCF of Madour implemented as respective separate first and second functional entities, that patent would still not anticipate claim 1 as Madour would not teach the first network entity sending a first message including a registration request to the second network entity.

The Examiner asserts that this aspect of claim 1 is taught in Madour in column 5, lines 57-58, which recites that:

> First, an MN 40 sends an origination message 41 to PCF__1 (42). Based on the MN's IMSI, PCF__1 determines, using the hash function, an index into the static lookup table 34 of PDSNs.

Those of skill working in this area will appreciate that the origination message 41 described in Madour is a substantially different type of message than a message containing a registration request, as is required by claim 1. Such messages are defined in the "3GPP2 Access Network Interfaces Interoperability Specification – Release A", 3GPP2 A.S0001.1, June 2000 (3GPP2 specification). The 3GPP2 specification is a mobile communication standard that describes overall system function for code division multiple access (CDMA) mobile communication systems, including services and features required for interfacing a Base Station (BS) with the

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Mobile Switching Center, with other Base Stations, and with the Packet Control Function (PCF); and for interfacing the PCF with the Packet Data Service Node (PDSN). This specification is available online at http://www.3gpp2.org/Public_html/specs/A.S0001-0.1.pdf and is not included here due to its size (896 pages).

In the 3GPP2 specification, on page 39, paragraph a, origination messages are defined as being sent by a mobile station (MS), with layer 2 acknowledgment required, over the access channel of the air interface to the source BS to request service. The access channel is also termed the A7 interface in such mobile communication systems and is used, in part for paging functions. Given this definition, even was the radio network of Madour equivalent to the first network entity of claim 1, which is not conceded, it is the mobile station that sends the origination message in Madour (in compliance with the 3GPP2 standard), not the radio network. The radio network is simply a vehicle for communicating the origination message from the MS to the PCF. Because claim 1 requires that the first network entity (the radio network in the Examiner's analysis) send the first message (not simply relay it), claim 1 is not anticipated on at least this basis.

Further, the 3GPP2 specification, on page 147, lines 14-15, describes a registration request message as being sent by a base station or PCF over an A11 interface to establish an A10 connection. The A11 interface is used to setup and control A10 connections, where A10 connections typically implement Generic Routing Encapsulation (GRE) tunnels. Those working in this area will appreciate that a A10 connection is a substantially different communication interface than the access channel used in Madour to send the origination message. Thus, the origination message of Madour, in the context of mobile communication systems, is an entirely

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different type of message that is communicated over a completely different communication interface protocol layer than a message including a registration request, as is recited in claim 1.

In view of the foregoing, Madour merely discloses a mobile station sending an origination message to a PCF (via a radio network). There is no teaching in Madour of the radio node sending the origination request to another network entity, or that the origination message contains a registration request. Therefore, Madour does not anticipate claim 1, and the rejection should be withdrawn

Without addressing the merits of the Examiner's statements regarding claims 2 and 3, which are not, therefore, conceded, Applicants point out that these claims depend ultimately from, and include all of the limitations, of claim 1. Thus, the arguments made above regarding claim 1 apply here as well and are herein incorporated. Therefore, it is respectfully requested that the rejection of these claims be withdrawn.

Claim 11 recites:

> A method for providing Internet Protocol communication services in a communication network, the method comprising:
>
> receiving a registration request message from a radio node on a control node, the registration request message comprising a request to register a mobile client detected on the radio node with a foreign agent;
>
> determining whether the mobile client is associated with at least one active communication session; if so,
>
> determining a last serving foreign agent associated with the mobile client;
>
> determining whether the last serving foreign agent is available and associated with the radio node; and, if so,
>
> sending a registration reply message from the control node to the radio node, the registration reply message comprising a network address of the last serving foreign agent.

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Claim 11 is directed a method for providing Internet Protocol communication services in a communication network that includes receiving a registration request message from a radio node on a control node, where the registration request message comprises a request to register a mobile client detected on the radio node with a foreign agent. The Examiner asserts that this aspect of claim 11 is anticipated by step 63 of Figure 3 of Madour. The Examiner further asserts that the radio network of Figure 1 of Madour corresponds to the radio node (including the BSC 51 and MSC 52 of Figure 2) and that the control node corresponds with the packet control PCF 53 of Figure 3 of Madour. As was discussed above, the PCF 53 of Madour is actually part of the radio node, not a separate entity as is asserted. Therefore, the PCF 53 of Figure 3 of Madour cannot correspond with the control node of claim 1. Thus, the messaging of step 63 in Figure 3 of Madour is intra-radio node between the BSC 51 and the PCF 53, not a communication between a radio node and a control node, as is recited in claim 11.

Further, the messaging associated with step 63 of Figure 3 of Madour is messaging associated with a "A9-Setup A8" operation (as indicated in the Figure) A9-Setup A8 messaging is described in the 3GPP2 specification in § 2.14.4.1 on pages 112-113. As may be seen in the 3GPP2 specification, this messaging is conducted over an A9 interface to setup an A8 connection. It is not, as has been previously described, a message including a registration request that is communicated over an A11 interface to establish an A10 connection. Thus, the messaging associated with step 63 of Madour's Figure 3 is conducted over a completely different interface for an entirely different purpose than the registration request message of claim 11. Based on the foregoing, Madour does not anticipate claim 11, and the rejection should be withdrawn.

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Without addressing the merits of the Examiner's statements regarding claim 16, which are not, therefore, conceded, Applicants point out that claim 16 depends ultimately from, and includes all of the limitations, of claim 11. Thus, the arguments made above regarding claim 11 apply here as well and are herein incorporated. Therefore, it is respectfully requested that the rejection of claim 16 be withdrawn.

Claim 17 recites:

> An Internet Protocol working device for providing Internet Protocol communication services to mobile client devices, the device comprising:
>
> a central processing unit;
>
> a first interface for communicating with at least one radio node, the first interface for receiving a registration request message from a radio node upon detecting a communication session associated with a mobile client on a radio node;
>
> a second interface for communicating with a plurality of network device comprising a plurality of foreign agents, the second interface for receiving load status information data and mobile client information data from the plurality of network devices comprising the plurality of foreign agents;
>
> at least one memory unit for storing the mobile client information data and the load status information data;
>
> a machine readable storage medium comprising a first set of instructions for processing the registration request message from the radio node responsive to receiving the registration request message from the radio node and for generating a registration reply message comprising a network address of at least one of the plurality of network devices comprising the plurality of foreign agents;
>
> wherein the network address specified in the registration reply message is determined using a second set of instructions for selecting network devices comprising foreign agents upon receiving registration request messages from the at least one radio node, the second set of instructions arranged to use the client device information data and the load status information data stored in the at least one memory unit.

Claim 17 is directed to an Internet Protocol working device that includes a central processing unit and a first interface for communicating with at least one radio node. The first interface is used for receiving a registration request message from the radio node. The Internet Protocol working

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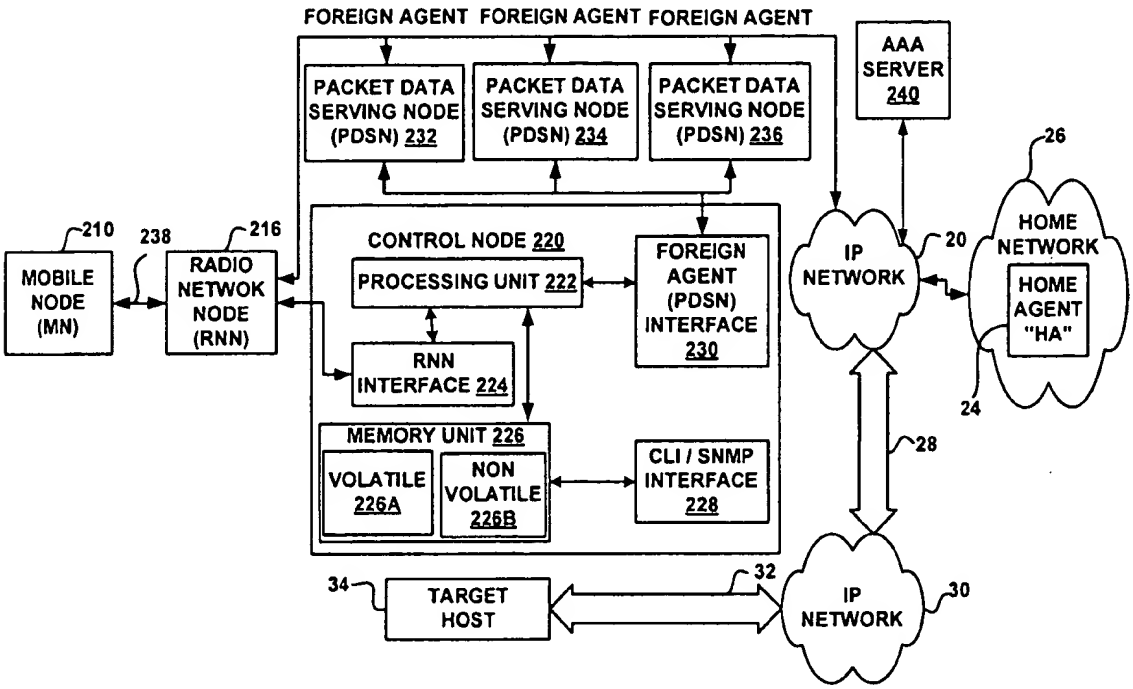
device also includes a second interface for communicating with a plurality of network devices, where the plurality of network devices comprises a plurality of foreign agents. The second interface is used for receiving load status information data and mobile client information data from the plurality of foreign agents. An example Internet Protocol working device in accordance with an embodiment of claim 17 is illustrated in Figure 2 of the application as control node 220. Figure 2 is presented below for the Examiner's convenience.

FIGURE 2



The control node 220 includes processing unit 222. Further, in the control node 220, the first interface for communicating with a radio network takes the form of the Radio Network Node (RNN) interface 224, which communicates with the RNN 216, as shown in Figure 2. As was discussed above, the RNN 216 includes a PCF or a PCN (packet control node) that is an integrated part of the RNN 216. The RNN 216 communicates with the mobile node (MN) 210

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over an air interface 238 (radio connection) via a radio network that is included in the RNN 216. Such a configuration is described in the application on page 11, lines 9-14.

In the control node 220, the second interface for communicating with a plurality of network devices that comprises a plurality of foreign agents takes the form of the foreign agent (PDSN) interface 230. As is described in the application on page 12, lines 6-8, "[t]he PDSNs 232, 234, and 236 provide their capacity information capabilities, such as current call load factors, processing unit load factors, or memory load factors, via the PDSN interface 230.

The Examiner asserts that the PCF__1 of Figure 2 of Madour corresponds with the central processing unit. However, because the Internet Protocol (IP) working device of claim 1 includes an interface for communicating with a radio node, it is clear that the IP working device and the radio node are functionally separate entities. As was discussed above, the PCFs of Madour (and PCFs in general) are, in fact, part of the radio node in mobile data communication network. Therefore, because the PCF__1 is part of the radio node, it is not possible for the PCF__1 of Madour to correspond with the central processing unit of claim 17, as the central processing unit is included in the IP working device, not the radio node.

Likewise, it is not possible for the radio network of Madour's Figure 1 (presented above) to correspond with the first interface of claim 17, as was asserted by the Examiner. For instance, as with the PCF__1, the radio network of Madour's Figure 1 is also an integrated part of the radio node of that figure (in combination with the PCF). Therefore, it would make no sense that the radio network is a first interface for communicating with the radio node. This would imply that the radio node includes an interface that is used to communicate with itself. Thus, the radio

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network of Madour does not teach an interface used for communication between a radio node and an Internet Protocol working device, as is recited in claim 17.

The Examiner also asserts that the R-P interface in step 21 of Madour's Figure 1 teaches the second interface for receiving load status information data and mobile client information data from the plurality of foreign agents. However, the R-P interface in Figure 1 of Madour is a Radio Packet network that is used for packet data communication between the PDSN and the mobile node (in combination with the air interface 16 in Madour's Figure 1). The R-P Interface is not used as an interface for receiving load status information data and mobile client information data on an IP working device from the plurality of foreign agents. It would make no sense for the PDSNs in Figure 1 to communicate load status information data to the mobile nodes.

In fact, Madour does not teach communicating load status information data from a plurality of foreign agents to an IP working device at all. The Examiner asserts that this aspect of claim 17 is taught by the lookup table in Madour's Figure 2 and column 3, lines 47-54, which recites:

> The PCF includes a static lookup table that includes a list of identifiers for MNs and an associated list of the plurality of PDSNs in the network.

The lookup table described in Madour is a static table that identifies MNs and PDSNs in the network. It is not load information that is sent from a plurality of foreign agents to an IP working device. There is no description or teaching in Madour of the communication of such load status information data, or the use of such information in selection of a foreign agent (PDSN), as is recited in claim 17. Based on the foregoing, claim 17 is not anticipated by Madour, and the rejection should be withdrawn.

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Without addressing the merits of the Examiner's statements regarding claims 18-20 and 27, which are not, therefore, conceded, Applicants point out that these claims depend ultimately from, and include all of the limitations, of claim 17. Thus, the arguments made above regarding claim 17 apply here as well and are herein incorporated. Therefore, it is respectfully requested that the rejection of these claims be withdrawn.

Because Applicants believe that the foregoing is sufficient to overcome the Examiner's rejections under 35 U.S.C. § 102 of claims 1-3, 11, 16, 17-20 and 27 on Madour, Applicants have not specifically addressed the remainder of the Examiner's assertions with respect to those claims. Applicants do not, however, specifically concede these statements and reserve the right to address them on the merits if they are asserted again in a subsequent Office Action.

Claim Rejections – 35 U.S.C. § 103

The Examiner has rejected claims 23 and 24 as being obvious over Madour in view of U.S. Patent 6,795,857 to Leung et al. (hereafter "Leung"). It is noted that claims 23 and 24 depend from claim 17 and include all of its limitations.

The Examiner cites to Leung as teaching storing authentication data associated with client devices. Even assuming the Examiner is correct in his assertions regarding the teachings of Leung, which is not specifically conceded, Leung does not make up for the deficiencies of Madour described above with respect to claim 17.

Therefore, claims 23 and 24, by virtue of their dependency on claim 17 cannot be obvious on Madour in view of Leung. Even were one of skill in the art to make the proposed combination, he or she would still not be able to produce the invention as recited in those claims,

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as that combination would be lacking at least the aspects of claim 17 discussed above. Thus, the rejections should be withdrawn.

Conclusion

In view of the foregoing, all of the pending claims are in condition for allowance. If the Examiner has any questions, he is invited to contact the undersigned at (360) 379-6514. Allowance of all the claims is respectfully requested.

Respectfully Submitted,

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